

REMARKS

This amendment adds, changes and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier. Claim 21 is requested to be cancelled. Claims 10, 19, and 26 are currently being amended. After amending the claims as set forth above, Claims 1-20, and 22-28 will be pending in this application. Support for the amendments may be found through the specification as originally filed, including but not limited to the following:

Claim 10: Claim 10 as originally filed, and FIG. 9.

Claim 19: Claims 1 and 19 as originally filed.

Claim 26: Claims 22, 23, and 26 as originally filed.

In the specification, the title has been amended.

Applicant thanks the Examiner for acknowledging that Claim 16 is allowable. However, Applicant believes that in light of the foregoing amendments and following remarks, all of the claims presented herein are also allowable.

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

I. Amendment to the Specification

The Examiner has required that a more descriptive title be furnished. As requested in the Amendments to the Specification section above, please replace the former title with the new title as indicated.

II. Rejections under 35 U.S.C. § 112

Claims 26-28 stand rejected under 35 U.S.C. § 112, second paragraph, for lack of sufficient antecedent basis. Claim 26 has been amended to depend from Claim 23, which contains the requisite antecedent basis.

III. Rejections under 35 U.S.C. § 102

According to M.P.E.P. § 2131, under 35 U.S.C. § 102 a “claim is anticipated only if each and every claim element as set forth in the claim is found...in a single prior art reference.”

A. Bryan

Claims 1-5 stand rejected under 35 U.S.C. § 102(b), as allegedly being anticipated by U.S. Patent No. 7,025,787 issued to Bryan et al. (hereinafter ‘Bryan’). In support of this rejection, the Examiner alleges that the centering post (128) of Bryan provides a vertically adjustable support, as recited in the rejected claims. (Office Action paragraph 6.) Applicant respectfully traverses.

Claim 1 recites, in part, “a disc insert disposed between the first and second cups, the disc insert comprising two opposing convex surfaces capable of articulating with the first and second concave surfaces of the first and second cups; wherein at least one of the first and second cups is mounted to its base plate through a vertically adjustable support.” A vertically adjustable support is described in paragraph 0046 of the specification as, “any support that can be adjusted in situ to change the spacing between the cup or knob mounted thereon and the base plate.” Bryan fails to teach a vertically adjustable support as recited in Claim 1.

Bryan teaches an implantable joint prosthesis having upper and lower members 104, 106, each of which includes a centering post 128, between which is positioned a central member 108 which includes a lower central opening. (Col. 17, lines 1-4.) Although Bryan provides very little description of the centering posts, FIG. 18 of Bryan shows that the posts

extend through the upper and lower members and appear to contact the central member. As such, the centering posts are not vertically adjustable supports because they cannot be adjusted in situ to change the spacing between a cup and a base plate. In fact, the centering posts of Bryan pass through the arcuate surfaces of the upper and lower members and, as such do not provide any type of support for the said surfaces.

The Examiner has identified the base plates of the prosthesis of Bryan as the upper or lower members and the cups as the arcuate surfaces of the upper and lower members. As noted by the Examiner, this interpretation is consistent with paragraph 0044 of the present specification which states, “a cup or knob is “disposed on” a base plate if it is adjustably or fixedly mounted to the base plate, or if it is defined by the surface of the base plate itself.” However, the Examiner has failed to recognize that a cup that is defined by the surface of a base plate cannot move relative to, or separately from, that base plate and, therefore, is not mounted to its base plate through a vertically adjustable support, as recited in Claim 1. (By way of clarification, the definition of “disposed on” includes cups that are defined by the surface of the base plate because in some of the embodiments described in the specification, only one of the two cups is adjustably mounted to its base plate. In these embodiments, the other cup may be defined by the surface of the base plate.) Because Bryan fails to teach each and every claim limitation of Claim 1, Applicant respectfully requests that this rejection be withdrawn.

To the extent that the Examiner is suggesting that the present invention is obvious in view of Bryan, Applicant also respectfully traverses. In order to provide a *prima facie* case of obviousness, a cited reference must provide some suggestion or motivation to modify the reference. (M.P.E.P § 2143) In addition, “If the proposed modification ... of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious.” More specifically, if a suggested combination would require a substantial reconstruction and redesign of the elements shown in a primary reference, as well as a change in the basic principle under which the primary

reference construction was designed to operate, the references do not render the claims *prima facie* obvious. (M.P.E.P § 2143.01(VI).)

The Examiner alleges that that the centering post of Bryan may be used to vertically adjust the implantable joint prosthesis. (Office Action, paragraph 6.) As discussed above, the centering post of Bryan does not provide a vertically adjustable support for the arcuate surfaces of the upper and lower members described by Bryan, and the Examiner has not identified any suggestion or motivation to modify the centering post such that it could serve as a vertically adjustable support. Indeed, such a modification would require a change in the position, connectivity and function of the centering post relative to the arcuate surfaces of the upper and lower membrane of the Bryan prostheses. Thus, this modification would amount to a substantial reconstruction and redesign of the elements of the Bryan prosthesis, as well as a change in the basic principle under which the prosthesis of Bryan was designed to operate. For this additional reason, Applicant respectfully requests that this rejection be withdrawn.

B. Harrington

Claims 10 and 11 stand rejected under 35 U.S.C. § 102(b) as allegedly anticipated by U.S. Patent No. 5,893,889, issued to Harrington. Applicant respectfully traverses.

Applicant respectfully submits that the Examiner has misconstrued the claim language of Claim 10, from which Claim 11 depends. Currently amended Claim 10 recites, in part, "...a first base plate comprising an exterior surface and an interior surface, the interior surface having a cup disposed thereon, *the cup defining a concave surface having a cross-section that forms a portion of a circle, wherein said portion is less than a semicircle*; and a second base plate having an exterior surface and an interior surface, the interior surface having a knob disposed thereon, *the knob defining a convex surface having a cross-section that forms a portion of a circle, wherein said portion is less than a semicircle*, wherein the interior surface of the first base plate is disposed opposite the interior surface of the second base plate, such that the cup and the knob fit together to provide an articulating joint." The claims must be read in light of the

specification, and paragraph 0044 of the specification provides clear definitions for the interpretation of a “cup” and a “knob,” as used in the present application:

For the purposes of this disclosure, a part of a disc prosthesis that defines a concave surface will be referred to as a “cup” and a part of a disc prosthesis that defines the complementary convex surface will be referred to as a “knob.” At least one of the cup or the knob that define the articulating joint is mounted to a first base plate through a vertically adjustable support. The remaining knob or cup may be mounted to a second base plate through a vertically adjustable support, fixedly mounted to a second base plate or may simply be defined by a protrusion or indentation in a second base plate. For the purposes of this invention, a cup or knob is “disposed on” a base plate if it is adjustably or fixedly mounted to the base plate, or if it is defined by the surface of the base plate itself. When the disc prosthesis is in place in the intervertebral space, the first base plate and the second base plate are disposed opposite one another such that the concave and convex surfaces come together to form the articulating joint. Once the disc prosthesis is in place in the intervertebral space, the vertically adjustable support or supports may be adjusted to expand the disc height until the natural disc height is restored and the base plates are pressed more firmly against the vertebrae, stabilizing the prosthesis and minimizing the risk of disc extrusion.

FIG. 9 provides further illustration of the cup and knob described in the paragraph [0044]. The “cup” is a single articulating surface that is a concave surface. A cross-section of the concave surface, taken perpendicular to the circular portion of the cup, forms a portion of a circle that is less than a semicircle. The “knob” is a single articulating surface that is a convex surface. A cross-section of the convex surface, taken perpendicular to the circular portion of the knob, forms a portion that is less than a semicircle. Both the cup and the knob are mounted to their respective base plates. As shown in FIG. 9, a cup is illustrated as reference numeral 100 and a convex surface, or “knob” as described above in paragraph [0044], is illustrated as reference numeral 138. Therefore, if one were to envision the device in FIG. 9 with the cup 100 as shown, and the convex surface 138 of disc insert 134 mounted directly to a second base plate, the device of Claim 10 would be readily apparent.

Harrington teaches a pivot ball 46 that is contained within a cavity having a constriction forming a neck 57 to retain the pivot ball in the cavity (Col. 3, lines 44-49 and FIG. 2). Harrington simply fails to teach a "...knob defining a convex surface having a cross-section that forms a portion of a circle, wherein said portion is less than a semicircle..." In fact, there is no cross-section of the pivot ball in Harrington, that can meet this claim element.

Harrington also teaches away from the "cup" and "knob" as recited in Claims 10 and 11, and described above. Harrington alleges that such an arrangement is not conducive to patient comfort, stating:

[e]xisting prostheses have upper and lower members, one of which has a generally semispherical portion which is received in a complementarily concave portion of the second member. Such prostheses employ the weight of the upper body to retain the semispherical portion of one member within the concave portion of the other member. When the patient is reclining, however, or when the patient bears his body weight with his arms so as to stretch the spine, existing prostheses are unable to retain their relationship to one another, and the parts may become disoriented. Such disorientation will cause intense pain and render a patient immobile.

(Col. 1, lines 40-52.) Because Harrington has specifically disavowed devices having complementary concave and convex portions, Harrington must be found to teach away from Applicant's presently claimed invention.

Because Harrington fails to describe the cup and knob of Claim 10, and explicitly teaches away from such an arrangement, Harrington cannot be found to anticipate Claim 10.

C. Jackson

Claim 12 stands rejected under 35 U.S.C. § 102(b) as allegedly anticipated by U.S. Patent No. 6,454,807, issued to Jackson. In support of the rejection, the Examiner relies on the teaching of a threaded bore in Jackson. Because the threaded bore in Jackson is not the same

as two threaded grooves disposed opposite and facing one another, as recited in Claim 12, Applicant respectfully traverses.

Claim 12 recites, an “intervertebral disc prosthesis assembly comprising: a first base plate comprising a circumferential edge, an interior surface, an exterior surface and a first threaded groove extending into the circumferential edge along the interior surface; a second base plate disposed opposite the first base plate, the second base plate comprising a circumferential edge, an interior surface, an exterior surface, and a second threaded groove extending into the circumferential edge along the interior surface, the second threaded groove disposed opposite and facing the first threaded groove...” FIG. 15c illustrates a threaded rod 172, a first threaded groove 164, and a second threaded groove 166.

Jackson teaches an intervertebral fusion cage prosthesis. (Col. 2, lines 6-9.) The device of Jackson shows a spinal fusion device that can be pivoted on a fulcrum to allow for appropriate angular support. (Col. 2, lines 14-17.) Jackson requires a complete bore through a base that is connected to the first and second legs. (Col. 4, lines 26-34.) FIG. 1 of Jackson illustrates that the threaded bore is defined by a single base plate 12. (Col. 5, lines 3-12.) In contrast, as can be seen in Applicant’s FIG. 12, the first groove 164 and the second groove 166 are threaded grooves defined by two separate, oppositely facing plates, as stated in the claims. The grooves are not through bores, as described by Jackson. Applicants note that Jackson does describe grooved bearing surfaces that mate to form an anterior channel (Col. 4, lines 61-66.), however, the grooves in the channels are not threaded.

Applicant submits that Jackson fails to teach or suggest each and every element of Claim 12. Therefore, Jackson cannot be found to anticipate Claim 12.

D. Fleischmann

Claim 21 stands rejected under 35 U.S.C. § 102(b) as allegedly anticipated by U.S. Patent No. 6,375,682, issued to Fleischmann. In view of the cancellation of Claim 21, the

rejection based upon Fleischmann should now be moot, and Applicant requests that the Examiner remove the noted rejection.

E. Daher

Claims 22-24 stand rejected under 35 U.S.C. § 102(b) as allegedly anticipated by U.S. Patent No. 4,657,550, issued to Daher. The Examiner alleges that Daher teaches a “connecting piece...with a buttressing means...adjustably mounted onto the base using a threaded connection, with a tenon...mounted onto the buttressing means. The height of the tenon can be adjusted by rotating the buttressing means.” Because Daher fails to teach each and every element of currently amended Claim 22, from which Claims 23 and 24 depend, Applicant respectfully traverses the rejection based upon Daher.

Claim 22 recites, in part, “...a first intervertebral disc prosthesis mounted to the superior vertically adjustable support; and a second intervertebral disc prosthesis.” As described in paragraph 0074 of the specification, the “first and second intervertebral disc prostheses that are mounted to opposing ends of the prosthetic vertebral body may have a variety of designs, provided they are adapted to be mounted to the vertebral body in a configuration and alignment that allows them to *replace a natural intervertebral disc* when the prosthetic vertebral assembly is implanted into a patient’s spine.” (Emphasis added.) Because Daher fails to teach any kind of disc prosthesis, Daher cannot be found to anticipate Claim 22, from which Claims 23 and 24 depend.

Daher teaches a “device for maintaining normal spacing between two vertebrae defining, in the vertebral column, the ends of a cavity resulting from the *elimination of at least a part of a vertebra*.” (Col. 1, lines 8-11, emphasis added.) Daher also teaches that “since the device takes up no more than 30% of the circumference of the vertebra, bone grafts may be readily put in place for a natural consolidation.” (Col. 1, lines 62-64.) Hence, Daher is directed to replacement of a vertebra without any consideration for a disc prosthesis or replacement. Without some teaching of at least a first disc prosthesis, as that term is used in the present

specification, and as recited in Claim 22, Daher cannot be found to anticipate Claim 22, from which Claims 23 and 24 depend.

In view of the foregoing comments and amendments regarding the rejections under 35 U.S.C. § 102, Applicant respectfully requests that the Examiner reconsider and withdraw the noted rejections under the cited references.

IV. Rejections under 35 U.S.C. § 103

According to M.P.E.P. §2143, in order to establish a *prima facie* case obviousness, three basic criteria must be met:

First there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

A. Bryan/Xavier

Claim 6 stands rejected under 35 U.S.C. § 103 as being unpatentable over Bryan in view of U.S. Patent No. 6,063,121, issued to Xavier et al. (hereinafter 'Xavier'). The Examiner states that "Bryan does not have a plurality of cables between the first and second base plates...Xavier teaches the use of multiple limiting wires." Applicant respectfully traverses.

As shown above with regard to the 35 U.S.C. § 102(b) rejection based on Bryan, Bryan fails to teach or suggest each and every claim element of Claim 1, from which Claim 6 depends, and Xavier fails to fill this void.

Xavier teaches a vertebral body prosthesis including an upper plate member having a depending ball, a lower plate member having an upstanding hemispherical socket, and

stainless steel limiting wires. (Col. 2, line 51 to col. 4, lines 29.) Xavier does not teach or suggest that the device may be vertically adjustable.

Without some suggestion or teaching of a vertically adjustable device, Applicant submits that a *prima facie* case of obviousness has not been established with respect to Claim 6.

B. Bryan/Gill

Claim 7 stands rejected under 35 U.S.C. § 103 as being unpatentable over Bryan in view of U.S. Patent No. 6,113,637, issued to Gill et al. (hereinafter ‘Gill’). Applicant respectfully traverses.

As shown above with regard to the 35 U.S.C. § 102(b) rejection based on Bryan, Bryan fails to teach or suggest each and every claim element of Claim 1, from which Claim 7 depends, and Gill fails to fill this void. Gill teaches an artificial intervertebral joint having a ball component and a trough component. (Col. 5, line 12 to col. 6, line 7.) Gill also teaches that a generally concave surface of the trough component may have a substantially flat surface for translational and rotational movement. (Col. 6, lines 31 – 59.) Gill does not teach that the artificial intervertebral joint is in any manner vertically adjustable, as required by Claim 1.

Because, alone or in combination, Bryan and Gill fail to teach or suggest each and every element of Claim 1, they cannot be found to obviate Claim 1 or any claim depending therefrom.

C. Bryan/Paponneau

Claims 8 and 9 stand rejected under 35 U.S.C. § 103 as being unpatentable over Bryan in view of U.S. Patent Publication No. 2005/0209697, to Paponneau et al. (hereinafter ‘Paponneau’). Applicant respectfully traverses.

Applicant submits that Bryan and Paponneau, alone or in combination fail to obviate Claims 8 and 9.

Claim 8 recites “wherein the at least one cup mounted to its base plate through a vertically adjustable support is characterized by a circumferential edge and a first notch extends into the circumferential edge of the cup, and further wherein the base plate to which the at least one cup is mounted is characterized by a circumferential edge and a second notch extends into the circumferential edge of that base plate, such that the first and second notches are disposed opposite and facing one another to provide a frame.” FIGS. 3 and 4 clearly show notches 112 and 120 and paragraphs 0079 and 0080 clearly describe that the notches 112, 120 are cut into the periphery of the corresponding circumferential edges. When the notches 112 and 120 are aligned, the notches form a frame in which a tab 126 may be fastened.

As noted above, Bryan fails to teach a vertically adjustable intervertebral disc prosthesis. Bryan also fails to teach a device having notches in the circumferential edge of the cup, as required by Claim 8. Bryan teaches a implantable prosthesis as described in Section III A, above, but fails to teach or suggest notches in the circumferential edge of a cup as required by Claim 8.

Paponneau teaches a stud 207 with a planar face 272 and a hexagonal socket 270, and when “in place, the stud 207 is flush with the outer face 204 of the intermediate element 201.” (Paragraph 0050) As shown in FIG. 6, and described in the specification, lower base 205 is nested in intermediate base 201, both of which have through bores, or orifices, 212, 230 that may be engaged by stud 207. (Paragraph 0055.) Stud 207 is intended to go through both orifices when they are aligned. As shown in FIG. 6, the orifices are bored in internal sections of the Paponneau device, not in circumferential edges. Paponneau simply fails to teach or suggest a notch, much less a notch that extends into the circumferential edge of a cup, as required by Claim 8.

Applicant respectfully submits that because Bryan and Paponneau, alone or in combination, fail to teach or suggest each and every element of Claims 1, 8, and 9, a *prima facie* case of obviousness has not been established.

D. Jackson/Jackson '742

Claims 13 and 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Jackson in view of U.S. Patent No. 6,685,742, issued to Jackson (hereinafter 'Jackson '742').

Applicant submits that, as discussed above in Section III C with regard to Claim 12, Jackson alone fails teach or suggest a “first threaded groove extending into the circumferential edge [of the first base plate]...and a second threaded groove extending into the circumferential edge [of the second base plate], the second threaded groove disposed opposite and facing the first threaded groove...,” and the further combination of Jackson with Jackson '742 fails to fill this void.

Jackson '742 teaches a “fusion cage system including a first leg...a second, normally inferior leg...a dependent, generally cylindrical pivot member...includ[ing] a central notch, aperture or groove, an upstanding, approximately rectangular knuckle...includ[ing] a central bore.” (Col. 1, line 54- col. 2, line 65.) Jackson '742 also shows a groove 35 in FIGS. 4 and 5, however there is no illustration or description that the groove is threaded, nor is the groove located along a circumferential edge. Jackson '742 fails to disclose a threaded groove on a circumferential edge of a first base plate, or a threaded groove on the circumferential edge of a second base plate. Therefore, even the combination of Jackson and Jackson '742 fails to teach or suggest each and every element of Claim 12, from which Claims 13 and 14 depend.

Without some teaching or suggestion of each and every element of Claim 12, Applicant submits that a *prima facie* case of obviousness has not been established for Claims 13 and 14.

E. Jackson/Jackson '742/ Bryan

Claim 15 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Jackson, in view of Jackson '742, and Bryan. Applicant respectfully traverses.

As shown above in Section IV. D., Jackson and Jackson ‘742 fail to teach or suggest each and every element of Claim 12, from which Claim 15 depends, and Bryan fails to fill the void.

As discussed in Section III. C. above, Claim 12 recites, “first threaded groove extending into the circumferential edge [of the first base plate]...and a second threaded groove extending into the circumferential edge [of the second base plate], the second threaded groove disposed opposite and facing the first threaded groove...” Bryan teaches those elements as described above in Section III. A. There simply is no teaching in Bryan of a first threaded groove, or a second threaded groove, where the first threaded groove is disposed opposite and facing the second threaded groove, as required by the Claim 12.

Furthermore, as cited above, “there must be some suggestion or motivation...to combine reference teachings” establish a *prima facie* case obviousness. M.P.E.P. § 2143. As discussed above, Bryan teaches a joint prosthesis while Jackson and Jackson ‘742 are directed to spinal fusion cages and Applicant submits that mutual teaching away from the other’s technology does not lend itself to establishing a *prima facie* case of obviousness. There is no teaching in Bryan to suggest that the joint prosthesis may be used as a spinal fusion device nor is there a teaching in Jackson or Jackson ‘742 that the spinal fusion cage may be used as a joint prosthesis to preserve range of motion.

Jackson and Jackson ‘742 both state that the “invention is directed to an articulated...cage...to support the adjacent vertebrae in a normal curved alignment while permitting fusion of the adjacent bones.” (Jackson col. 2, lines 6-11; Jackson ‘742, col. 2, lines 22-26.) Conversely, Bryan is designed to have “the geometry of the internal surfaces...configured to provide a range of motion that closely approximates that provided by healthy joint tissue.” (Co. 4, lines 21-23.)

In the Background section of Bryan, there is ample discussion of the problems associated with fusion devices and procedures, stating

“[p]erhaps of even greater concern, successful fusioin eliminates normal spinal biomechanics. Range of motion at the level of the fusioin is ideally eliminated, because the affected vertebrae have been effectively joined to form a single bone. Be casuse the patent tries to maintain the same overall range of motion of the entire spine, additional stress is imposed ont heintervertebral discs of the adjact vertebrae...lead[ing] to accelerated degeneration at levels above and below the fusion site...”

(Bryan col. 1, line 14 – col. 2, line 9.) Conversely, Jackson and Jackson ‘742, as stated above, are specifically directed to such spinal fusion devices.

With both Bryan and the two Jackson disclosures, disavowing the technology of the other, there is a mutual teaching away of the technologies. The Jackson patents teach away from the use of a joint prosthesis that preserves motion and Bryan teaches away from a spinal fusion devices that restrict motioin.

Applicant respectfully submits that not only do Jackson, Jackson ‘742, and Bryan fail to teach each and every element of Claims 12 and 15, but there is no basis for combining those teachings, and therefore a *prima facie* case of obviousness has not been established.

F. Jackson/Mashburn

Claim 17 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Jackson in view of U.S. Patent No. 7,022,138, issued to Mashburn. Applicant respectfully traverses.

As discussed above, Jackson fails to teach or suggest a “first threaded groove extending into the circumferential edge [of the first base plate]...and a second threaded groove extending into the circumferential edge [of the second base plate], the second threaded groove disposed opposite and facing the first threaded groove...,” and Mashburn fails to fill this void.

Mashburn is directed to spinal fusion devices having a first plate, and a second plate, each having a threaded shaft, with threadless apertures. (Col. 1, line 40 to col. 2, line 12.)

For a discussion of Applicant's device, see Applicant's description of FIG. 12 above in Section III C. There simply is no teaching in Mashburn of a first threaded groove, or a second threaded groove, where the first threaded groove is disposed opposite and facing the second threaded groove.

Claim 17 requires that the "threaded rod comprises a face defining at least one aperture that *extends over* the circumferential edge of the first or second base plate..." (Emphasis added.) Thus, Claim 17 requires that the at least one aperture is *in the face* of the threaded rod. As shown in Applicant's FIG. 19b, screw apertures 183 are in the face of the threaded rod and extend over the circumferential edge of the base plates. The device of Mashburn teaches that set screws 34, 35 may be inserted into apertures 37 in the side of a central sleeve, as illustrated in FIG. 3. However, such a configuration is not analogous to a threaded rod having a face with at least one aperture, as required by the prosthesis of Claim 17. Mashburn simply fails to teach or suggest the apertures in the face of a threaded rod.

Applicant respectfully submits that because the combination of Jackson and Mashburn fails to teach each and every element of Claim 12 and Claim 17, a *prima facie* case of obviousness has not been established.

G. Jackson/Cauthen

Claim 18 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Jackson in view of U.S. Patent No. 6,019,792, issued to Cauthen. Applicant respectfully traverses.

Claim 18 depends from Claim 12 and thereby necessarily contains each and every element thereof. Applicant submits that Jackson, as discussed above, fails to teach each and every element of Claim 12, and Cauthen fails to correct the noted deficiencies.

Cauthen is directed to a spinal implant having two fusion chambers with articulating means. (Col. 2, lines 42-61.) The device of Cauthen has radiused walls to allow for

bone ingrowth and threads to help secure the device in position. (Col. 6, lines 15-30.) The radiused walls of Cauthen are described as “threads 80 to facilitate advancing the implant 10 into the intervertebral space during implantation.” (Col. 6, lines 27-29.) Thus, the entire device of Cauthen may act in a screw-like fashion. There simply is no teaching in Cauthen of a “first threaded groove extending into the circumferential edge [of the first base plate]...and a second threaded groove extending into the circumferential edge [of the second base plate], the second threaded groove disposed opposite and facing the first threaded groove...”

Applicants respectfully submit that the Examiner has misconstrued the device of Cauthen to be equivalent to a “threaded rod comprises a face defining at least one aperture that extends over a vertebra when the disc prosthesis assembly is in place in an intervertebral space.” Applicants direct the Examiner's attention to FIGS. 18 and 19b, where if one were to enlarge a diameter of the face 182 of the threaded rod, the screw apertures 183 may be made to extend over not only the circumferential edge of the base plates, but also a vertebra as required in Claim 18. Thus, one could use bone screws driven through the screw apertures 183 to anchor the threaded rod and prosthesis in the vertebra. (See paragraph 0091.) This is not the same as making the entire device a threaded device as exemplified by Cauthen.

Applicant respectfully submits that because the combination of Jackson and Cauthen fails to teach or suggest each and every element of Claim 12 or Claim 18, a *prima facie* case of obviousness has not been established.

H. Bryan/Middleton

Claims 19 and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bryan in view of U.S. Patent No. 6,296,663, issued to Middleton. Applicant respectfully traverses.

Bryan fails to teach each and every element of Claim 1, from which Claims 19 and 20 depend, and Middleton fails to fill the void.

Amended Claim 19, now depends from Claim 1 and thereby necessarily contains each and every element of Claim 1, further recites that the disc insert further comprises an exterior wall forming the two opposing convex surfaces, wherein the exterior wall defines a plurality of compressible helical slits. As discussed above in Section III A, Bryan fails to anticipate or obviate Claim 1. Middleton, teaches a “intervertebral disc prosthesis for insertion within the intervertebral space....having a longitudinal axis...a radial axis...an external wall having at least one slit therein...[to] facilitate transfer of load along the exterior wall.” (Col. 2, lines 27-38.) Just as Bryan fails to teach or suggest a vertically adjustable device, Middleton too fails to teach or suggest a vertically adjustable intervertebral disc prosthesis.

Because Bryan and Middleton, alone or in combination, fail to teach or suggest each and every element of Claims 1, 19 and 20, Applicant submits that a *prima facie* case of obviousness has not been established.

I. Daher/Bryan

Claim 25 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Daher in view of Bryan. Applicant respectfully traverses.

Claim 25, depends from Claim 22, and therefore necessarily contains each and every element of Claim 22. Claim 22 has already been shown to be patentable over Daher (Section I E above). Therefore, because Claim 22 is patentable, Applicant respectfully submits that Claim 25 is patentable as well, and requests that the Examiner remove the noted rejection.

In view of the foregoing remarks and amendments, Applicant respectfully requests that the Examiner reconsider and remove the rejections under 35 U.S.C. § 103.

CONCLUSION

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

Respectfully submitted,

Date October 11, 2006

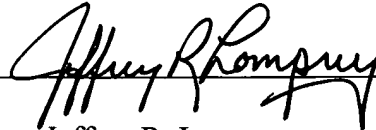
FOLEY & LARDNER LLP

Customer Number: 23524

Telephone: (608) 258-4305

Facsimile: (608) 258-4258

By

A handwritten signature in black ink, appearing to read "Jeffrey R. Lomprey", is written over a horizontal line.

Jeffrey R. Lomprey
Attorney for Applicant
Registration No. 55,401